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EXAMINER	
CHANG, EDITH M	

ART UNIT	PAPER NUMBER
2637	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/591,560	FARAG ET AL.	
	Examiner	Art Unit	
	Edith M. Chang	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 October 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The 500 in FIG.6 need to have descriptive label "initial acquisition search window", in conformance with 37 CFR 1.84(n) and 1.84(o). Since, a descriptive label of "initial acquisition search window" should be inserted into FIG.6 to properly describe element (500) in page 11 lines 18-19 of the current specification.

The label "We" should be changed to "W_E" as described in page 14, lines 6-9 of the current specification.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Response to Arguments/Remarks

2. Applicant's arguments filed October 27, 2005, have been fully considered but they are not persuasive.

Argument: Applicants argue that Bayley discloses the increased reacquisition time is measured based on the magnitude of the shift threshold, rather than being based in proportion to a time duration of the inactive period.

Response: In FIG.2, Bayley discloses that if the magnitude of the shift in phase (SHIFT) over the last wakeup period, or alternatively, the last N wakeup periods, is less than the T (column 6, lines 1-5, 210 FIG.2), the control processor 62 shortens the

reacquisition time (R=MAX-X, column 6, lines 10-12, 216 FIG.2) before the beginning of the next assigned slot to allow the mobile receiver to remain in sleep mode longer (column 6, lines 12-18, 218 FIG.2), otherwise, the control processor 62 increases the reacquisition time (column 6, lines 30-34) and the mobile receiver remains in sleep mode shorter. The comparing SHIFT (210 FIG.2) and increasing the reacquisition time R (216 & 218 FIG.2) is processed a multiple of times accordingly when there are no more messages (in inactive period).

Hence, Bayley discloses a dynamic acquisition window *having* a time width (R) which increases in proportion to a time duration of the inactive period *as recited in the claims*.

Argument: Applicants arguer that it would not have been obvious to combine the references of APA and Bayley because Bayley teaches that if successive steps were employed to increase the reacquisition time, a slower response time to rapid changes in the environment and loss of incoming messages would be rendered (column 6, lines 45-50). Thus, one skilled in the art would not have been motivated to select the references in the manner suggested by the Examiner and combine APA and Bayley to render the claimed invention obvious.

Response: In FIG.2, Bayley teaches that if successive steps are used as opposed to immediate maximization of reacquisition time (at YES 210 FIG.2), the mobile receiver 2 will conserve more power, but at the cost of having a slower response time to rapid changes in the environment and thus possible loss of an incoming messages (column 6, lines 45-50). Thus, in the preferred embodiment, control

processor 62 immediately restores the reacquisition time to R=MAX msec if the magnitude of the SHIFT is greater than T usec (column 6, lines 50-53, 212 FIG.2).

Thus, at the time of the invention was made, it would have been obvious to one of ordinary skill in the art to have the adaptive reacquisition time taught by Bayley (FIG.2 blocks 202 to 218 '173) implemented accordingly in the APA for acquisition search requests to reacquire/resynchronize the mobile receiver from the "sleep" (inactive) mode (column 1, lines 54-62) in a shorten time for the purpose of without wasting battery power and also without losing incoming messages (column 2 lines 51-56).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 4-6, 8, 10-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Bayley (US 6,101,173).

Regarding **claims 1, 10 & 13**, in Figure 2, the admitted prior art (APA) discloses an acquisition search window (block 204) during an inactive period (block 202 transmission stop) is wider than the standard search window block 200 (see page 6 lines 6-15 of the specification) during an active period (block 206 transmission restart). The detail descriptions of the prior art Figures 1-3 are discussed on pages 1-7 in the

background of the invention. The prior art Figures 1-3 teach all the subject matter as recited in claims 1, 10 and 13. However, the admitted prior art fails to show or suggest defining a dynamic search window having a time width which increases in proportion to a time duration of the inactive period.

In FIG.2, Bayley teaches an adaptive reacquisition time R of a mobile receiver in a slotted paging environment (column 1, lines 30-37 & column 2, lines 58-65), the mobile receiver was in sleep mode (inactive period), before waking up to acquire the synchronization in the reacquisition time R (block 202), wherein the reacquisition time R is the time width of a dynamic acquisition window of the mobile receiver. In block 200, the reacquisition time R is set initially to the MAX to allow the mobile receiver waking up to synchronize/acquire the pilot signal (column 1, lines 30-37) before receiving the messages in the assigned slots (active).

The block 216 shortens the reacquisition time R based on the amount SHIFT (column 6, lines 20-23, the SHIFT measured in PN phase shift of T μsec); and the block 212 increases the R in relation to the amount SHIFT as well. The amount of PN phase *SHIFT* of the expected pilot signal and the received pilot signal is *in proportion to the duration of the sleep mode* of the mobile (column 1, lines 53-62), and the reacquisition time *R* is increased/decreased based on the PN phase *SHIFT*, hence the reacquisition time (the time width) *R increases in proportion to* the duration of the inactive period (sleep mode).

At the time of the invention was made, it would have been obvious to one of ordinary skill in the art to have the adaptive reacquisition time taught by Bayley (FIG.2 blocks 202 to 218 '173) implemented accordingly in the APA for acquisition search requests to reacquire/resynchronize the mobile receiver in a shorten time without wasting battery power and also without losing incoming messages (column 2 lines 51-56).

Regarding the first and second packets of claim 10, the combined/modified method *uses/associates* the standard search request (block 200 FIG.2 APA) acquiring a first packet; when the transmission stops at block 202 (FIG.2 APA) that is the first packet is lot, then *uses/defines* the dynamic reacquisition search window of Bayley's method for acquisition search requests (block 204 FIG.2 APA) of a second packet, wherein the time width of the dynamic reacquisition search window is in proportion to the PN phase SHIFT (block 210 FIG.2 '173) that is the duration of the inactive period (lost the first packet).

Regarding **claim 4**, the APA teaches using a standard search window associated with a rake finger in a rake receiver (page 2, line 17-page 3, line 1) having the strongest power (page 3, line 22-page 4, line 2).

Regarding **claim 5**, the APA teaches the search requests being performed until the mobile terminal goes into the inactive state (page 2, lines 11-16).

Regarding **claims 6 & 8**, in FIG.1, the APA teaches a mobile terminal transmitting and receiving the data during the active period or/and the inactive period (page 1, lines 9-14).

Regarding **claim 11**, the APA teaches *comparing* the received multipath components (the detected signal) with a pre-defined symbol patterns (the reference signal) (page 3, lines 8-10); *determining* a value based on the comparison, repeated at different delay offsets (*repeatedly shifting incrementally*) and *resulting/obtaining* in a plurality of values (page 3, lines 11-12 & page 5, lines 1-5) over the entire width of the search window (page 5, lines 14-17); identifying the highest value and comparing the highest value to a predetermined threshold value (page 5, line 20-page 6 line 1).

5. Claims 2-3, 12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Bayley (US 6,101,173) as applied to claims 1 and 13 above, and further in view of Hutchison, IV et al. (US 5,790,589).

Regarding claims **2, 12** & **14**, the acquisition search request of the APA combined/modified with Bayley's adaptive reacquisition does not explicitly specify the function of the time width (start point W_S and end point W_E) of the dynamic acquisition window, however Hutchison teaches the function/relation of the width of the dynamic acquisition window in the flowchart of F1G.3, wherein the adaptive acquisition window to extend an initial start point **Wos** (block 50) and end point **Woe** (block 48) by PN spaces/chips (is the time **t** of inactive period) of a search window (column 9, lines 1-7) during the inactive period at which time the messages are not received, when the pilot is not detected in the pilot requiring (block 36).

As Bayley suggests the "SYSTEM AND METHOD FOR RAPIDLY REACQUIRING A PILOT CHANNEL" by Hutchison (column 2, lines 16-21), at the time of the invention was made, it would have been obvious to one of ordinary skill in the art to have the fast reacquiring method taught by Hutchison in Bayley's method that the block 36 (FIG.3 '589 pilot detected in search window) as the blocks 205 and 206 (FIG.2 '173 monitor assigned slot and more messages), the blocks 210 to 216 (FIG.2 '173) are replaced by the blocks 40 to 50 (FIG.3 '589) accordingly to provide efficient searching and efficient pilot reacquisition after a mobile sleep period, and a cost-effective mobile (column 3 lines 25-35 '589).

Regarding initial position of the dynamic reacquisition window **Wos** and **Woe**:
In FIG.2 of Hutchison, the modified/combined method teaches a dynamic reacquisition window starting with a search window 33 (column 7, lines 44-47) with initial start point **Wos** (chip number 6) and initial end point **Woe** (chip number 8) as stated in column 8, lines 43-47 ('589); In FIG.3, when n=0 set the search window (block 34, column 8, lines 4-9 & lines 37-40) at the initial position, and then retarded/decrease or advance/increase the position of the search window along the PN chip sequence (the time width of the dynamic reacquisition window).

Regarding the end point of the dynamic reacquisition window $\mathbf{W_E}$:
In FIG.2 of Hutchison, at block 36, if the contact is lost (inactive, block 36), increase n by 1 (block 40, now n=1), if n is odd (YES, block 46), then advance/increase (+) the ending point $\mathbf{W_E}$ by PN space to advance previous windows (block 48) that is the initial end point **Woe** extended from chip number 8 to chip number 9 (column 8, lines 43-54)

wherein the Δchip or the duration of the search window, the increment/decrement, is arbitrary, here is two chips, after setting the new window with the new end chip number 9, go to block 36; hence, the end point W_E is increased/advanced when the n is an odd number.

Regarding the start point of the dynamic reacquisition window W_S:
In FIG.2 of Hutchison, If contact is lost again at block 36, n is increased by 1 to an even number (n=2, NO, block 46), then retard/decrease (-) the start point W_S by PN space to retard along the PN sequence (block 50, column 8, lines 55-59) that is the initial start point **Wos** decreased from the initial start chip 6; hence, the start point W_S is decreased/retarded when the n is an even number.

This iterative spiral searching method is repeated with increasingly divergent alternating advance and retarded the search window by advancing (+) the end point W_E of the window along the PN sequence and retarding (-) the start point W_S of the window along the PN sequence (abstract, lines 10-15).

Hutchison provides the start point W_S and end point W_E of the window as recited in the claims 2, 12 and 14, wherein the **t** is the PN space or chips, the start point of the window **Ws** equals the initial start **Wos** decreased (-) by n/2 (even or odd) of PN spaces so the **Ws** can be represented by **Wos – kt**, wherein the **k** is associated to the n, when the **Wos - kt** reaches zero **Ws** is set to zero (blocks 44 and 34, column 8, lines 24-26), since the PN chip number starts from zero; at the advancing end point side, the end point of the window W_E = the initial end point **Woe + kt**, and the maximum of the end

point of the window is the radius of the cell associated with the receiver (see page 5, lines 17-19 of the instant application).

The **k** depends the system and the environment of the receiver that define the n repeats (column 2, lines 42-48 & lines 52-60 '589), wherein the reacquisition is delayed/prolonged in proportion to the duration of the sleep/inactive period and the environment changes during the sleep period, hence **k** is a design choice depending on the search speed (column 7, lines 44-47 '589), therefore **k** is different in a different system used/set and inherent from the system, the quantity **5/6** of **k** is inherent and comprised in the system.

Regarding **claim 3**, APA teaches the maximum of the end point of the window is the radius of the cell associated with the receiver (see page 5, lines 17-19 of the instant application).

Regarding **claim 15**, the APA teaches *comparing* the received multipath components (the detected signal) with a pre-defined symbol patterns (the reference signal) (page 3, lines 8-10); *determining* a value based on the comparison, repeated at different delay offsets (*repeatedly shifting incrementally*) and *resulting/obtaining* in a plurality of values (page 3, lines 11-12 & page 5, lines 1-5) over the entire width of the search window (page 5, lines 14-17); identifying the highest value and comparing the highest value to a predetermined threshold value (page 5, line 20-page 6, line 1).

Regarding **claim 16**, the modified/combined method teaches a dynamic reacquisition window starting with a search window 33 (column 7, lines 44-47 '589) with initial start point **Wos** (chip number 6) and initial end point **Woe** (chip number 8) as

stated in column 8, lines 43-47 ('589), and the start point W_S decreased in relation of PN sequence and end point W_E increased in relation of PN sequence (refer to the rationale of the claim 2 rejection).

6. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Bayley (US 6,101,173) as applied to claim 1 above, and further in view of Bloebaum (US 6,188,351 B1).

Regarding **claims 7 & 9**, The APA and Bayley do not explicitly specify the maximum speed of the mobile terminal, however, in Fig.2b & Fig.3, Bloebaum teaches the width of the dynamic acquisition search range/window ($\Delta\chi$) is increased in correspondence with an expected maximum speed of the mobile terminal (column 3, lines 54-column 4, line 5, wherein the distance is related to the maximum velocity u' of the mobile) wherein the search window increased in correspondence with the expected maximum speed of the mobile terminal u'.

As the APA's acquisition search range is between a base station 100 and mobile terminal 102 (Figure 1) moving relatively to the base station, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Bloebaum's teaching in APA's acquisition search method to reduce the code shift searching/code acquisition, the reduces of the overall latency aid to meet the requirement of the emergency location (column 3, lines 60-63).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay K. Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
January 3, 2006

KHAI TRAN
PRIMARY EXAMINER